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HERITAGE REMEDIATION/ENGINEERING, INC.



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October 24, 1990

Mr. A. William Nosil
Engineering Manager
HEXCEL Company
11555 Dublin Blvd.
Dublin, CA 94568

RE: Report of DNAPL Recovery Pilot Testing
Fine Organics Project, Lodi, NJ
HR/E Project No. 60027

Dear Mr. Nosil:

This letter report presents our results of the DNAPL Recovery Pilot Tests performed in RW7-1, RW7-4, and RW7-5. Based on the data collected, it appears RW7-5 will be the most prolific producer.

In short, information obtained from pilot testing has aided in our decision to recommend that there is no need to install a large diameter recovery well at this time. Two of the eight 4-inch diameter wells are likely to provide adequate DNAPL recovery. We recommend that you forward this report to the NJDEP as a request to eliminate the 24-inch recovery well from the previously submitted DNAPL recovery plan.

1.0 Additional 4-Inch Wells

To further delineate the DNAPL plume, four additional wells were installed to augment the DNAPL thickness information obtained from RW7-1 through RW7-4. Three additional wells (RW7-5, RW7-6, and RW7-7) were installed north and west of RW7-4 because of the four feet of product measured in RW7-4. DNAPLs were found in only RW7-5 in this area. One additional well (RW7-8) was installed south of RW7-1 which also had approximately four feet of product. Measurements in RW7-



8 did not reveal the presence of DNAPLs. The four additional wells were installed September 19 and 20, 1990.

1.1 Design

The 4-inch diameter DNAPL recovery wells each consists of five feet of 0.010-inch wire-wrapped stainless steel screen with galvanized casing. The base of the screened interval were placed approximately two feet into the top of the silty clay aquitard, acting as a sump to collect possible DNAPLs. The screen is surrounded by a sand filter pack with a bentonite seal. The remainder of the annulus was backfilled with a cement/bentonite slurry. The well cover is flush mounted.

1.2 Installation

A truck-mounted drill rig was used to install the additional DNAPL wells and was installed using hollow stem auger techniques. Split spoon soil samples were obtained from the bottom of the soil borings to ensure screen placement approximately two feet into the silty clay aquitard. Auger cuttings were placed into 55-gallon drums for later disposal.

2.0 DNAPL Recovery Pilot Test

Due to the preliminary indications of three relatively high-yield DNAPL Recovery Wells (RW7-1, RW7-4, and RW7-5), a pilot recovery test was conducted on each well.

An R.E. Wright pneumatic sinker recovery pump and controller was used to recover DNAPLs from the wells and placed in 55-gallon drums for later disposal. During DNAPL removal, DNAPL thicknesses were measured by utilizing an infrared interface probe capable of sensing the immiscible liquid in the wells.

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During the first test, the recovery pump's sensors were not operating properly. Recovery well RW7-4 yielded 0.5 gpm DNAPLs for approximately ten minutes before the plume level decreased and water was drawn into the pump's intake. Recovery well RW7-1 yielded 0.5 gpm DNAPLs for approximately two hours before the pump yielded water. Recovery well RW7-5 proved to be the most prolific producer of DNAPLs by not yielding water, and the recovery system was temporarily installed in that well.

Once the recovery system was operational in RW7-5, depth to product measurements were made prior to daily start-up of the recovery system from top of casing (TOC) reference allowing for the plume thickness to stabilize. The recovery system was operational for approximately 8 hours per day during this study. The following table summarizes some of the data collected during the pilot study:

DNAPL Pilot Recovery
RW7-5

Date	Depth to DNAPL (ft)	DNAPL Thickness	Net Decrease (ft)	Accumulated DNAPLs Recovered (gal)
09/25	15.18	4.17	0	200
09/26	15.45	3.90	0.27	300
09/27	15.62	3.73	0.44	375
09/28	15.78	3.57	0.60	400
10/03	15.95	3.40	0.77	500

The total depth of RW7-5 from the TOC reference is 19.35 feet (approximately 20 feet below grade). It should be noted that the well is set two feet into the silty clay aquitard such that the DNAPL thickness in the above table is not a representation of the true DNAPL thickness.

Initially, RW7-5 produced approximately 30 gallons per hour (gph) on the first day of recovery with approximately 10% water. After adjustments were made to the pumps's sensors, the well yielded approximately 12.5 gph of water-free DNAPL on the second day of recovery. On the third day, the well yielded approximately 10 gph, and by the fourth day, it yielded approximately 5 gph.



CONCLUSIONS/RECOMMENDATIONS

Based upon the results of the DNAPL pilot study, it appears RW7-1 and RW7-5 will yield the most DNAPLs out of the eight recovery wells installed. HR/E recommends permanently installing a four-pump controller to collect DNAPLs from RW7-1 and RW7-5 with sinker recovery pumps. The controller can then be used to collect ground water, if required, with two additional ground-water recovery pumps installed in RW7-1 and RW7-5.

We hope this fulfills your needs and should you have any questions or concerns, please do not hesitate to call.

Respectfully,
Heritage Remediation/Engineering, Inc.

A handwritten signature in black ink, appearing to read "Robert R. Beckwith", is written over the typed name.

Robert R. Beckwith, CPG
Senior Hydrogeologist

RRB/dg

cc: Joe Ritchey
Jeff Macri

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